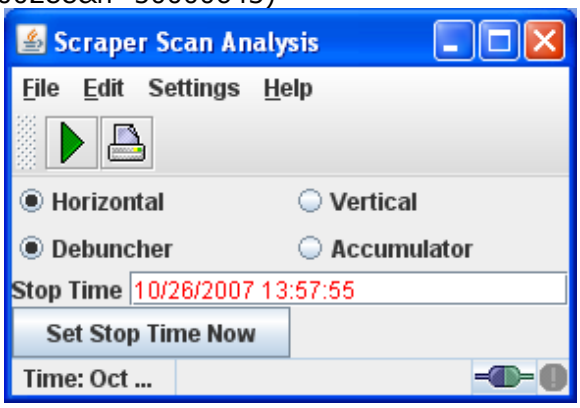
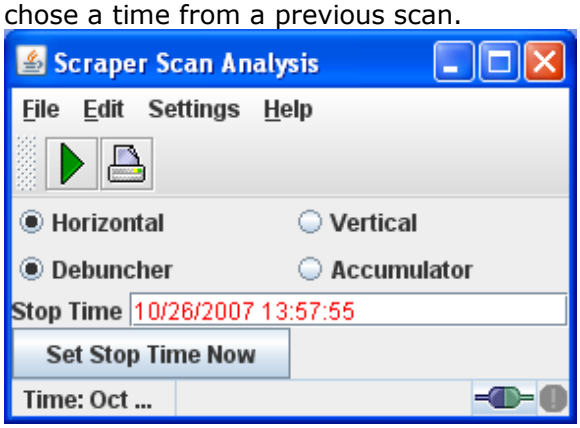
2007-10-25 Java Scraper Analysis Program

Friday, October 26, 2007
1:15 PM

- Hints for using the Java Scraper Scan Analysis Program (http://www-bd.fnal.gov/appix/start?p=55000288&n=50000643)
  - 

  - Make sure that the plug shows connected in the lower right of the application. If not, click on the plug and then connect to "@default." You must be behind the firewall to make this connection.
  - Select which accelerator and which plane you want to work on.
  - Run the admittance measurement from the sequencer.
  - When scrape is complete, click on "Set stop time now" and then run app. Or, you can chose a time from a previous scan.
  - 

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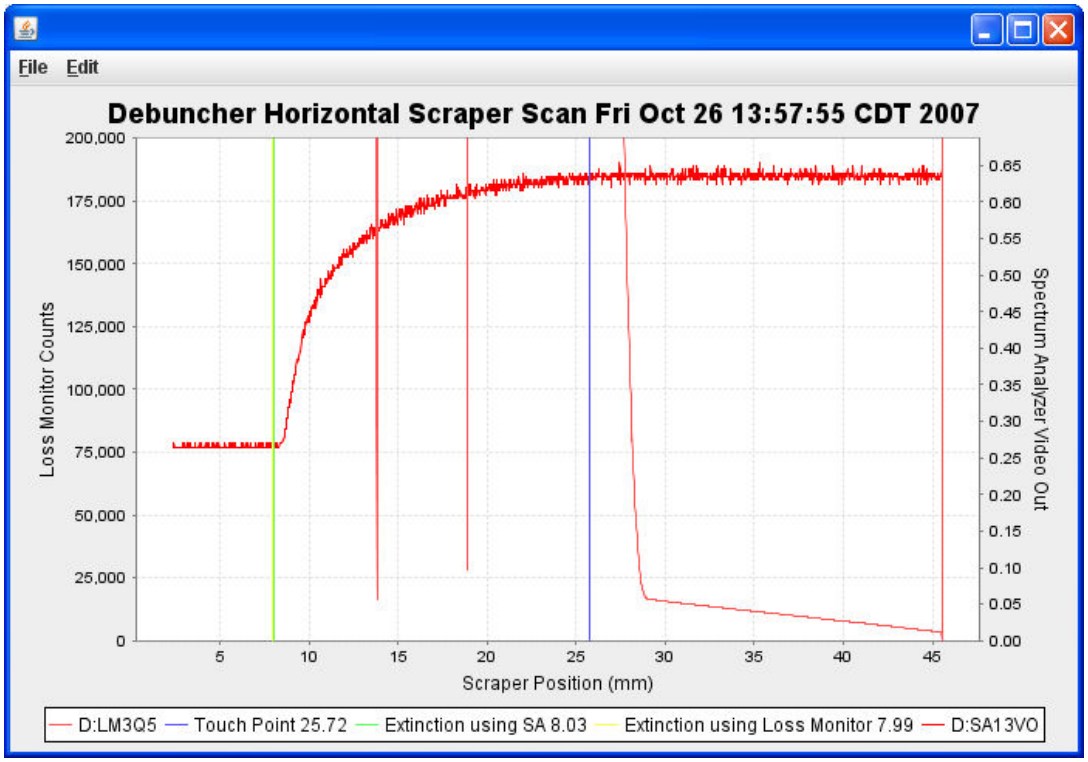
  - After the desired time is in the Stop time field, click in that field to select the time. This will turn the letters green.
  - Now click the green arrow to collect the data.

- 

- We will now want to zoom in on the plot to choose the touch and extinction points. We can change the scales by right-clicking anywhere in the plot and selecting properties. The x-axis (domain axis) is the scraper position. The y-axis (range axis) has the SA output and the loss monitors.
- Right-click on the display and select properties:
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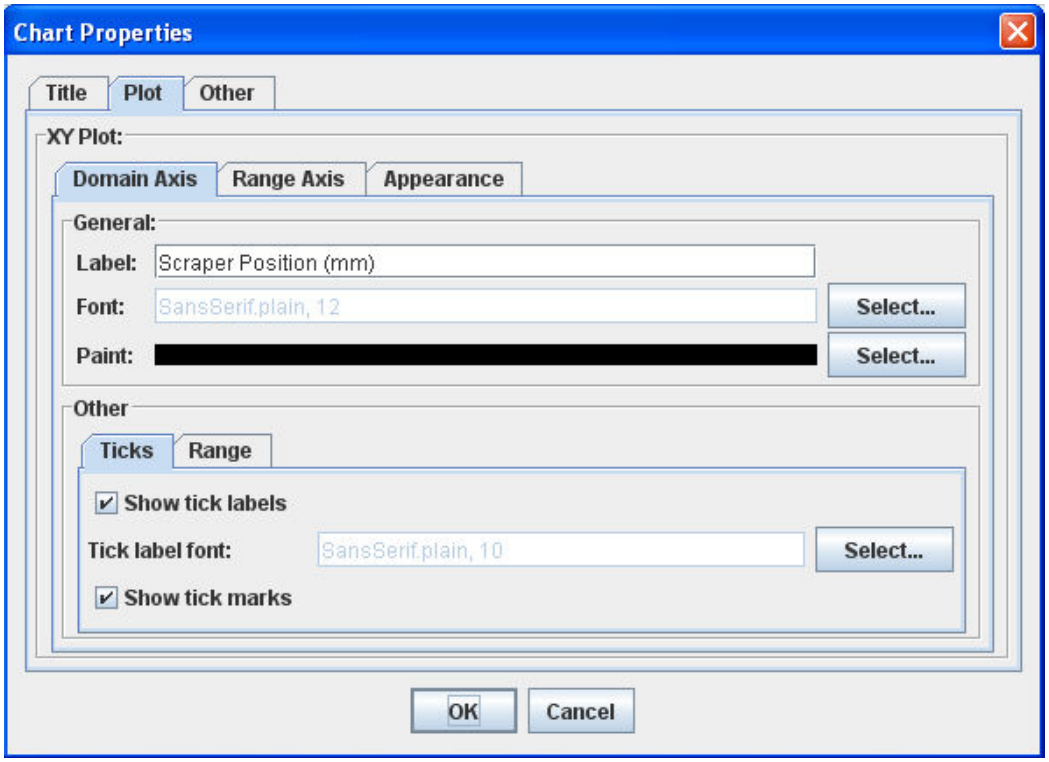
- Select Plot TAB



- Domain Axis
  - Select Range

- Select Range Axis
  - Select RANGE

- **Touch point**
  - Domain axis: 20-25
  - Range axis: 0-2000
  - Pick the point where the loss monitors "touch the beam."
  - Placing the cursor over the loss monitor line will give you the (x,y) values. In this case, 29.959 would be a good guess.

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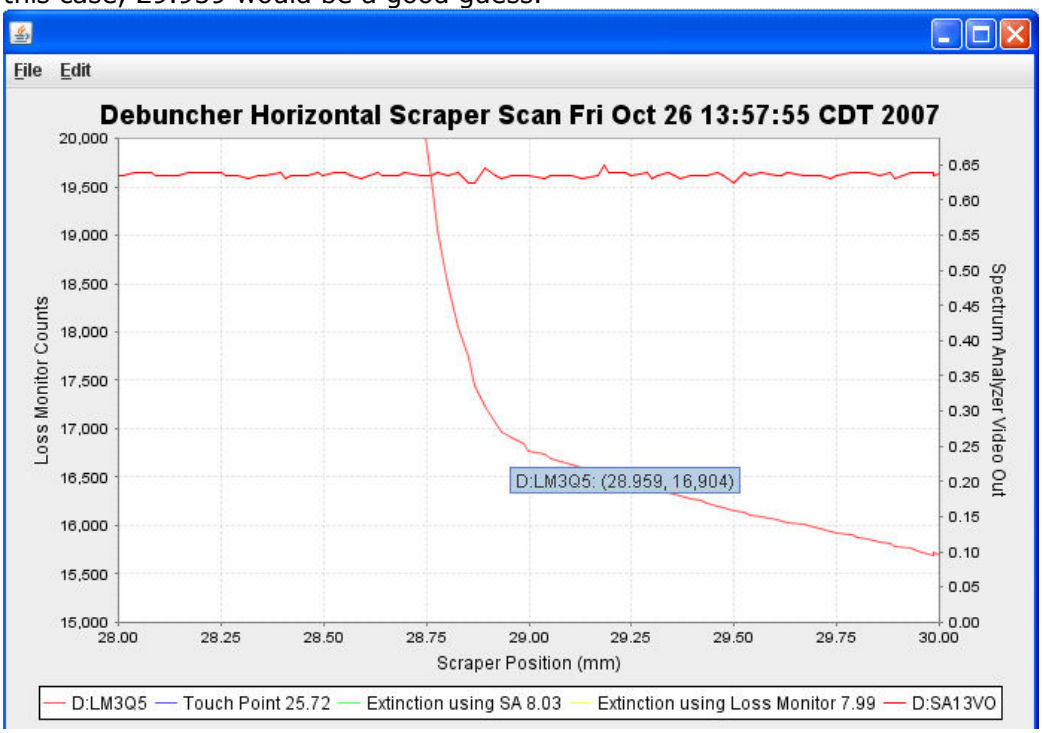
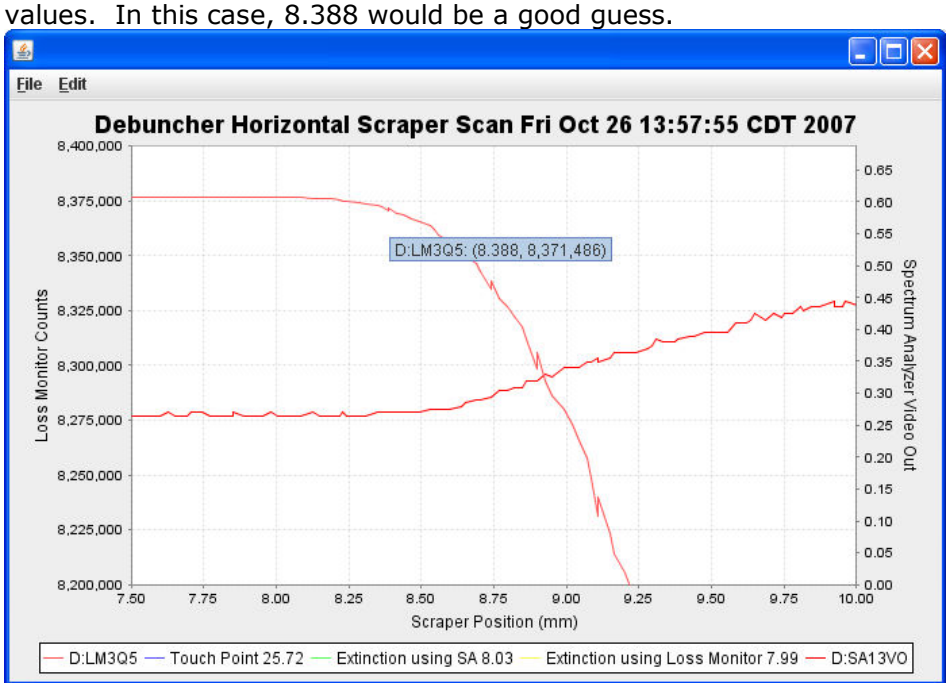


- Extinction point
  - Domain axis: 5-10
  - Range axis:
    - First select AUTO to get the BLMs on scale.
    - Blow up on the BLM scale until you can see it fall off.
    - Select the location where the SA signal goes to zero or the BLM signal starts to roll off.
    - You can use a combination of when the loss monitor drops off and the SA goes to zero.
    - Placing the cursor over the loss monitor line will give you the (x,y) values. In this case, 8.388 would be a good guess.



- If we define x = (Extinction point) - (Touch point), then:
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- Current values for Beta are:

	βx	βy
Debuncher	12.27m	10.66m
Accumulator	19.39m	24.33m

- Admittance:
  - $$A = \frac{x^2}{\beta_x}$$
- So, in this example where we measured the touch and extinction points for the Debuncher horizontal
  - A= (29.959mm - 8.388mm)^2/(12.27m)
  - A= 37.9 pi mm-mrad

- Fall 2007 measurements give us:
  - Debuncher (10-26-07)
    - Horizontal = 35.2 pi mm-mrad
    - Vertical = 34.9 pi mm-mrad
  - Accumulator (10-22-07)
    - Injection Orbit
      - Horizontal = 12.1 pi mm-mrad
      - Vertical = 9.2 pi mm-mrad
    - Central Orbit
      - Horizontal = 10.0 pi mm-mrad
      - Vertical = 9.06 pi-mm-mrad
    - Core Orbit
      - Horizontal = 8.8 pi mm-mrad
      - Vertical = 9.0 pi mm-mrad